**Amendments to the Specification:**

Please delete the paragraph beginning on page___, line___.

Please replace the paragraph beginning on page 1, line 5 with the following rewritten paragraph:

-- The present application is related to U.S. ~~Application Serial Number (Docket 82421), filed ---, by~~ Patent Number 6,594,084, issued July 15, 2003 to Border, et al., and entitled, "Method Of Manufacturing A Precisely Aligned Microlens Array;" U.S. ~~Application Serial Number (Docket 83859), filed ---, by~~ Patent Number 6,515,800, issued February 02, 2003 to Border, et al., and entitled, "Microlens Array;" U.S. ~~Application Serial Number (Docket 83861), filed ---, by~~ Patent Number 6,587,274, issued July 01, 2003 to Border, et al., and entitled, "Double-Sided Microlens Array And Method Of Manufacturing Same;" U.S. Application Serial Number ~~(Docket 83862), filed ---,~~ 10/028,035, filed December 20, 2001 by Border, et al., and entitled, "Laser Array And Method Of Making Same;" and, U.S. Application Serial Number ~~(Docket 83863), filed ---,~~ 10/027,748, filed December 20, 2001 by Border, et al., and entitled, "Fiber Optic Array And Method Of Making Same."

Please replace the paragraph beginning on page 7, line 12 with the following rewritten paragraph:

Turning now to FIG. 1b, fiducial marks 13 formed in an optical article array, such as refractive lens array 11, using the method of the invention is illustrated. In this embodiment, fiducial marks 13 are used to align an optical assemblage 8 comprising refractive lens array 11 and laser array 9. As described in the invention, additional optical features 16 are used to create fiducial marks 13 through optical means. According to FIG. 1b, fiducial marks 13 on the lens array 11 are precisely located on opposing surface 11b of lens array 11. To ensure precise alignment of optical assemblage 8, each one of a plurality of precision through-holes 15 formed in laser array 9 is alignably centered over a corresponding fiducial mark 13 in lens array 11. This process aligns each of the lasers 9a in the laser array 9 with a refractive lens 11a in the refractive lens array 11. After the optical assemblage 8 is aligned, it is rigidly affixed typically by potting in a suitable adhesive material. Precise alignment of precision through-holes 15 over the fiducial marks 13 is accomplished with a high power

microscope (not shown) often with a computerized vision system linked to a computerized positioning system to automate the process.

Please replace the paragraph beginning on page 7, line 27 with the following rewritten paragraph:

Referring to FIGS. 2 and 3, an optical array 10 having accurately located fiducial marks 24, 28 formed on an opposing surface 30 of a transparent substrate 12 is illustrated. According to FIGS. 2 and 3, optical articles, such as microlens array 22, 32, are supported on mounting surface 14 of transparent substrate 12 that is opposite surface 30. Important to the invention, an additional optical feature 20 (described below) is formed adjacent to the microlens array 22, 32 to aid in precisely forming fiducial marks 25, 29 at focal points 24, 28. According to FIG. 2, focal point 24 (corresponding to a fiducial mark 25) is then produced with a high intensity collimated beam of light 26. As shown in FIG. 3, a laser source 27 may be used to produce such high intensity light 26. The additional optical feature 20 receives the collimated beam of light 26 from laser source 27 and precisely focuses it 28 onto opposing surface 30 of the microlens array 10. It is also important to the invention that prior to forming the fiducial marks ~~13~~ 25, 29 at focal points 24, 28, surface 30 of the transparent substrate 12 is altered or treated in the area 31 where the fiducial marks ~~13~~ 25, 29 are to be formed. The objective of altering or treating surface 30 is to make suitably visible fiducial marks ~~13~~ 25, 29 when exposed to the focused high intensity light 26. Suitable surface altering techniques include dip coating, roughening, spin coating, vacuum coating, metallizing, among others.

Please replace the paragraph beginning on page 8, line 17 with the following rewritten paragraph:

Skilled artisans will appreciate that there are several processes that may be used for forming a mold for making optical articles, such as optical array 10, which includes additional optical ~~feature~~ features 20 as described. Such processes include lithographic printing, ink jet printing, indentation, diamond turning and diamond milling, each of which can deliver a position to position accuracy of 0.25 micron. Importantly, the method of the present invention uniquely uses the process for forming the microlens array 32 for also forming the

additional optical features 20 that precisely locates the fiducial marks 25, 29 at focal points 24, 28.

Please replace the paragraph beginning on page 8, line 23 with the following rewritten paragraph:

Referring to FIGS. 4 and 5, optical features having a variety of configurations with refractive or diffractive lenses can be used to create various shaped fiducial marks. According to FIG. 4, a lens array 40 has a plurality of lenses 41 formed ~~in~~ on first surface 46 of transparent medium 44. Generally round refractive lens feature 45 can be used to make a generally round fiducial mark 42 ~~in~~ on the treated portion 49 of second surface 48 of transparent medium 44, opposite first surface 46 of the transparent medium 44. Moreover, to produce a generally linear fiducial mark, a generally linear lens feature is required (not shown). According to FIG. 5, a generally crossed linear refractive lens feature 50 is used to produce a generally crossed-shaped (X-shaped) fiducial mark 52. Those skilled in the art will now appreciate that other patterns for the optical feature can be produced by a combination of refractive and diffractive optical features.

Please replace the paragraph beginning on page 9, line 5 with the following rewritten paragraph:

Referring to FIGS. 6a and 6b, in another embodiment of the invention, double-sided optical arrays 58, 59 are illustrated. According to FIG. 6a, double-sided optical array 58 has an arrangement of optical articles 60, 62 on either of opposing surfaces 61a, 61b in transparent medium 61. Fiducial marks 69, 66 are formed on ~~both~~ the treated portions 63, 64 of the opposing surfaces 61a, 61b, respectively, by repeating the fiducial marking process described hereinabove. According to FIG. 6b, alternatively, double-sided optical array 59 has optical features 72, 80 mounted on opposing surfaces 70a, 70b of transparent medium 70. In this embodiment, two sets of fiducial marks 78, 83 are formed only on ~~surface 70b~~ the treated portion 76 of surface 70b opposite surface 70a so the misalignment between the two optical articles 72, 80 could be easily determined.

Please replace the paragraph beginning on page 9, line 16 with the following rewritten paragraph:

Referring again to FIG. 6a, double-sided optical array 58, more particularly, has a first plurality of lenses 60 matched to a second plurality of lenses 62, both being mounted ~~in~~ on opposing surfaces 61a, 61b of transparent medium 61. Two complimentary sets of additional optical features 65, 68 are formed in either of opposing surfaces 61a, 61b, respectively. Optical features 65, 68 are used to form fiducial marks 66, 69 on the opposing surfaces 61b, 61a, respectively. As shown in FIG. 6a, optical feature 65 has a generally round shape which forms a generally round shaped fiducial mark 66 on the opposing surface 61b. In the same alternative, double-sided optical array 58, a generally ring shaped optical feature 68 formed on surface 61b produces a generally ring shaped fiducial mark 69. Alternatively, fiducial marks 66, 69 and optical features 68, 65 can be used as matching reference marks to measure the relative alignment of the optical articles 60, 62 on surfaces 61a, 61b by measuring the relative centering of the fiducial marks 66, 69 from the optical features 65, 68.

Please replace the paragraph beginning on page 10, line 7 with the following rewritten paragraph:

Referring again to FIG. 6b, another embodiment of a double-sided optical array 59 is illustrated. As described above, a first plurality of lenses 72 in optical array 59 has additional generally round optical features 74 formed on surface 70a of transparent substrate 70. Optical features 74 provide precise focusing of the collimated beam of light (FIG. 2) onto opposing surface 70b which forms a generally round fiducial mark 78 on a treated portion 76 of opposing surface 70b. In this embodiment, the second plurality of lenses 80 is formed on opposing surface 70b of transparent medium 70. Further, generally square fiducial marks 83 ~~surround generally round fiducial marks 78 that~~ have been produced ~~by optical features 74 formed on opposing surface 70a~~ along with lenses 80 on the treated portion 76 of surface 70b. The alignment of the first plurality of lenses 72 to the second plurality of lenses 80 is preferably determined by measuring the magnitude and direction of the de-centering, i.e., the distance from an imaginary centerline passing through the lenses to the fiducial mark of fiducial mark 78 to fiducial mark 83.

Please replace the paragraph beginning on page 10, line 21 with the following rewritten paragraph:

In FIGS. 7 and 8, two additional embodiments of the invention are illustrated. According to FIG. 7, a laser array 110, having lasers 90, includes two additional optical features or ~~cross linear lens~~ crossed linear lenses 92 that produce fiducial marks 94 in the form of a cross (X) on ~~an~~ the treated portion 97 of opposing surface 96b. Lasers 90 may be arranged in openings in transparent medium 96 or they may be bonded to first surface 96a of transparent medium 96. According to FIG. 8, a fiber optic array 120, having fiber optic units 100 formed in transparent substrate 106, includes additional optical features 102 adjacent to fiber optic units 100 that are used to produce fiducial marks 104 on ~~an~~ the treated portion 107 of opposing surface 106b of the fiber optic array 120. The fiber optic units 100 may be formed in transparent substrate 106 or they may be bonded to first surface 106a. The same process, described above, for forming fiducial marks 94, 104, is used in the present embodiments of the invention.

**In the Parts List:**

Please replace the Parts List with the following rewritten Parts List. The pages are numbered to correspond to the original page numbers in the specification.

**PARTS LIST**

| | |
|---|---|
| 1 | microlens |
| 2 | prior art microlens array |
| 3 | mounting flange |
| 5 | surface of mounting flange 3 |
| 6 | surface of mounting flange 3 supporting microlens 1 |
| 7 | fiducial marks on opposing surface 5 |
| 8 | optical assemblage |
| 9 | laser array |
| 9a | lasers in laser array 9 |
| 10 | optical array |
| 11 | refractive lens array |
| 11a | refractive lens in refractive lens array 11 |

11b surface for fiducial marks

12 transparent substrate

13 fiducial marks for refractive lens array 11

14 mounting surface

16 additional optical feature used to form fiducial marks 13

15 precision through-holes

20 additional optical feature

22 microlens array

24 focal point of additional optical feature 20 on an opposite surface to the microlens array

25 fiducial mark

26 high intensity collimated beam of light

27 laser source

28 focal point produced by the collimated light 26 passing through the additional optical features 20

29 fiducial mark

30 fiducial marking area on the opposite side of the microlens array 22

**Parts List – continued**

| | |
|---|---|
| 31 | treated area on surface 30 |
| 32 | multiple lens refractive lens array |
| 40 | lens array |
| 41 | plurality of lenses |
| 42 | generally round fiducial mark |
| 44 | transparent medium |
| 45 | generally round refractive lens feature |
| 46 | first surface of transparent medium 44 |
| 48 | second surface of transparent medium 44 |
| 49 | treated area of surface 48 |
| 50 | crossed linear refractive lens feature |
| 52 | cross-shaped fiducial mark |
| 58 | alternative double-sided optical array |
| 59 | alternative double-sided optical array |
| 60 | optical articles (first plurality of lenses in optical array 58) |
| 61 | transparent medium |
| 61a, b | opposing surfaces in transparent medium 61 |
| 62 | optical articles (second plurality of lenses in optical array 58) |
| 63 | treated portion of surface 61a |
| 64 | treated portion of surface 61b |
| 65 | round upper additional optical feature |
| 66 | found fiducial mark |
| 68 | ring-shaped lower additional optical feature |
| 69 | ring-shaped fiducial mark |
| 70 | transparent medium |
| 70a, b | opposing surfaces in transparent medium 70 |
| 72 | optical features (first plurality of lenses in lens array 59) |
| 74 | round additional optical feature |
| 76 | treated portion of opposing surface 70b |

**Parts List - continued**

78 round spot fiducial marks

80 optical features (second plurality of lenses in lens array 59)

83 square fiducial mark

90 lasers

92 crossed linear lens on laser array 110

94 X-shaped fiducial marks on lower surface

96 transparent medium of laser array 110

96a first surface of transparent medium 96

96b second surface of transparent medium 96

97 treated portion of surface 96b

100 fiber optic units

102 additional optical feature

104 X-shaped fiducial marks on lower surface

106 transparent medium of fiber optic array 120

106a first surface of transparent medium 106

106b opposing surface of transparent medium 106

107 treated portion of surface 106b

110 laser array

120 fiber optic array